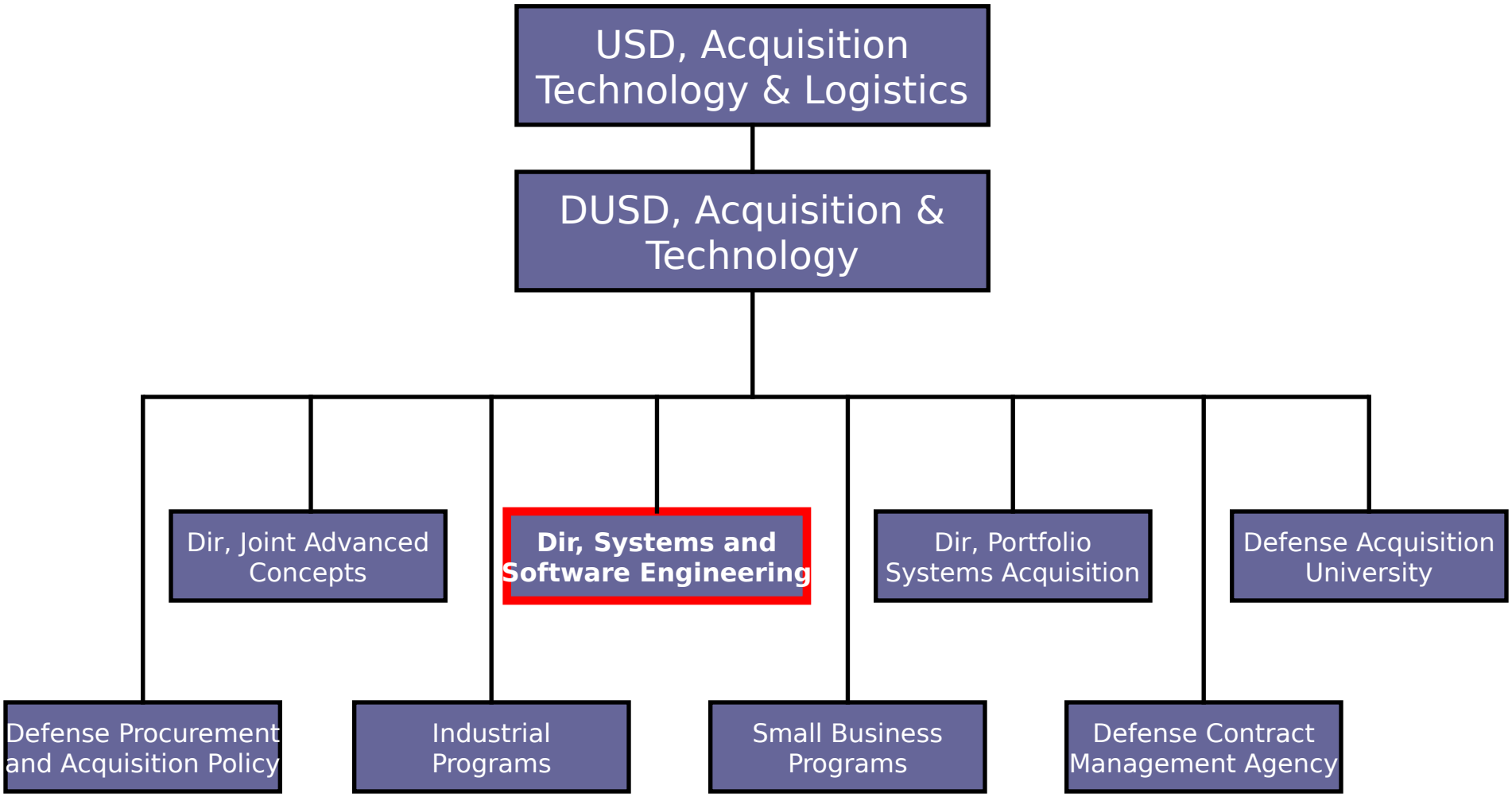
DOD Standardization Conference

Parts Management Initiatives Panel

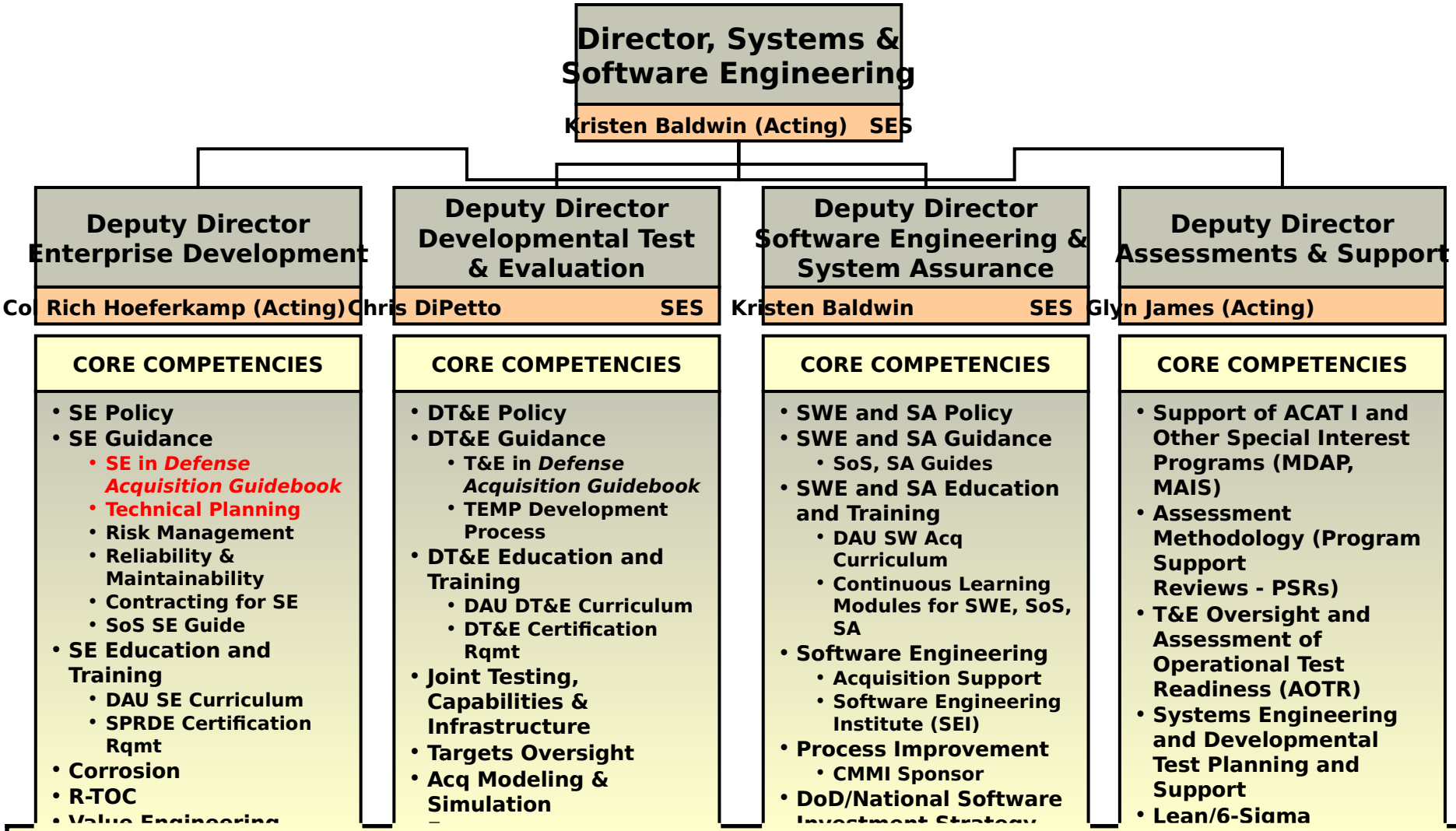
'Parts Management in Systems Engineering'

Chet Bracuto
Systems and Software Engineering (Enterprise Development)
Office of the Deputy Under Secretary of Defense (A&T)
5 March 2008

OUSD (AT&L) Organization

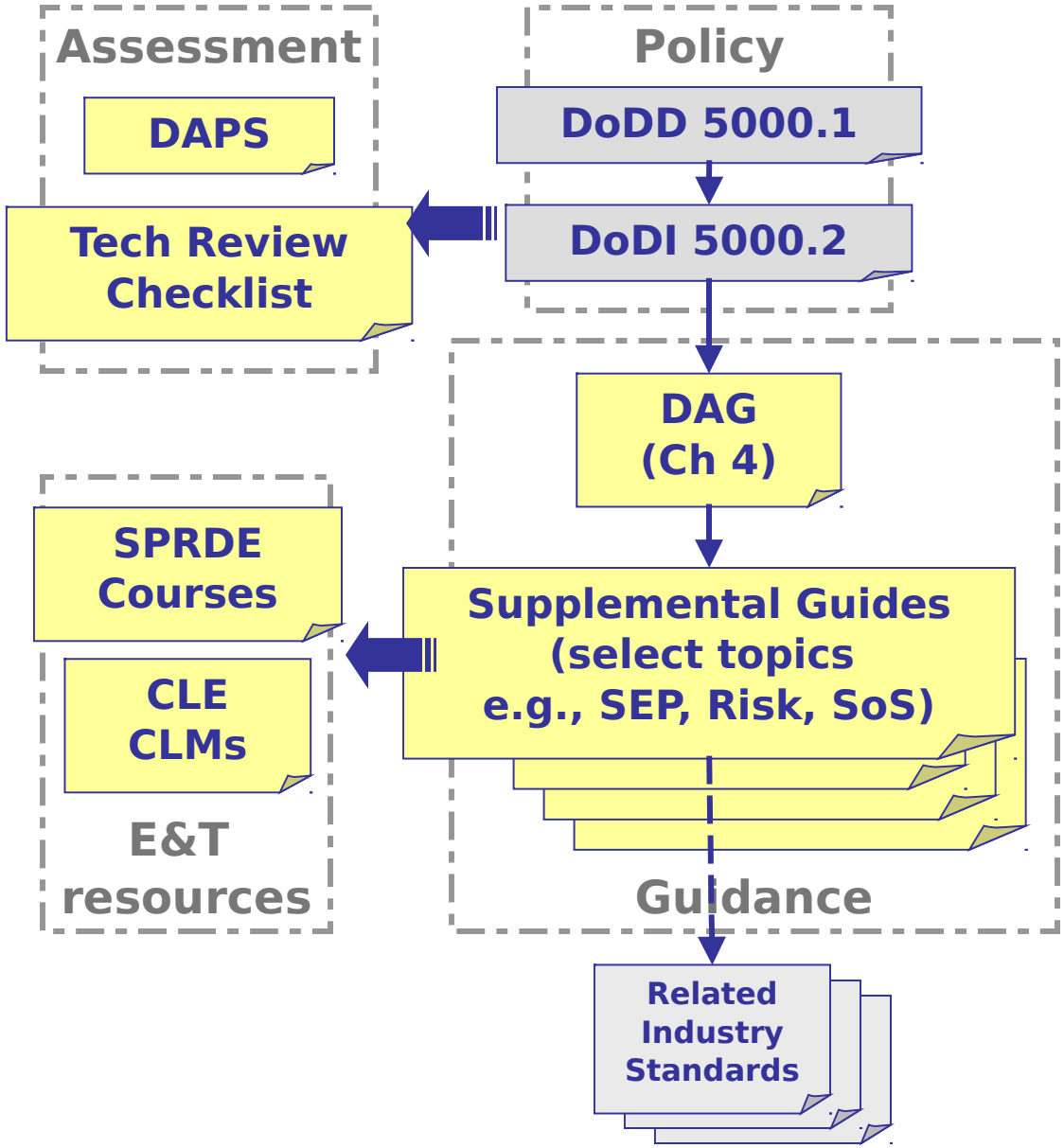


Systems and Software Engineering
Organizational Core Competencies



Acquisition program excellence through sound systems and software engineering

Elements of SE Policy, E&T, Guidance and Assessment



PMR IPT Findings

"Acquisition environment lacks adequate emphasis on parts management/standardization at the DoD level"

"Systems Engineering discipline currently lacks parts management/standardization focus"

"Most DoD programs do not address DoD level parts management/standardization"

Parts Management Reengineering
Implementation Process Team (PMRIPT)

SSE Views on Parts Management

To be effective, Parts Management must be

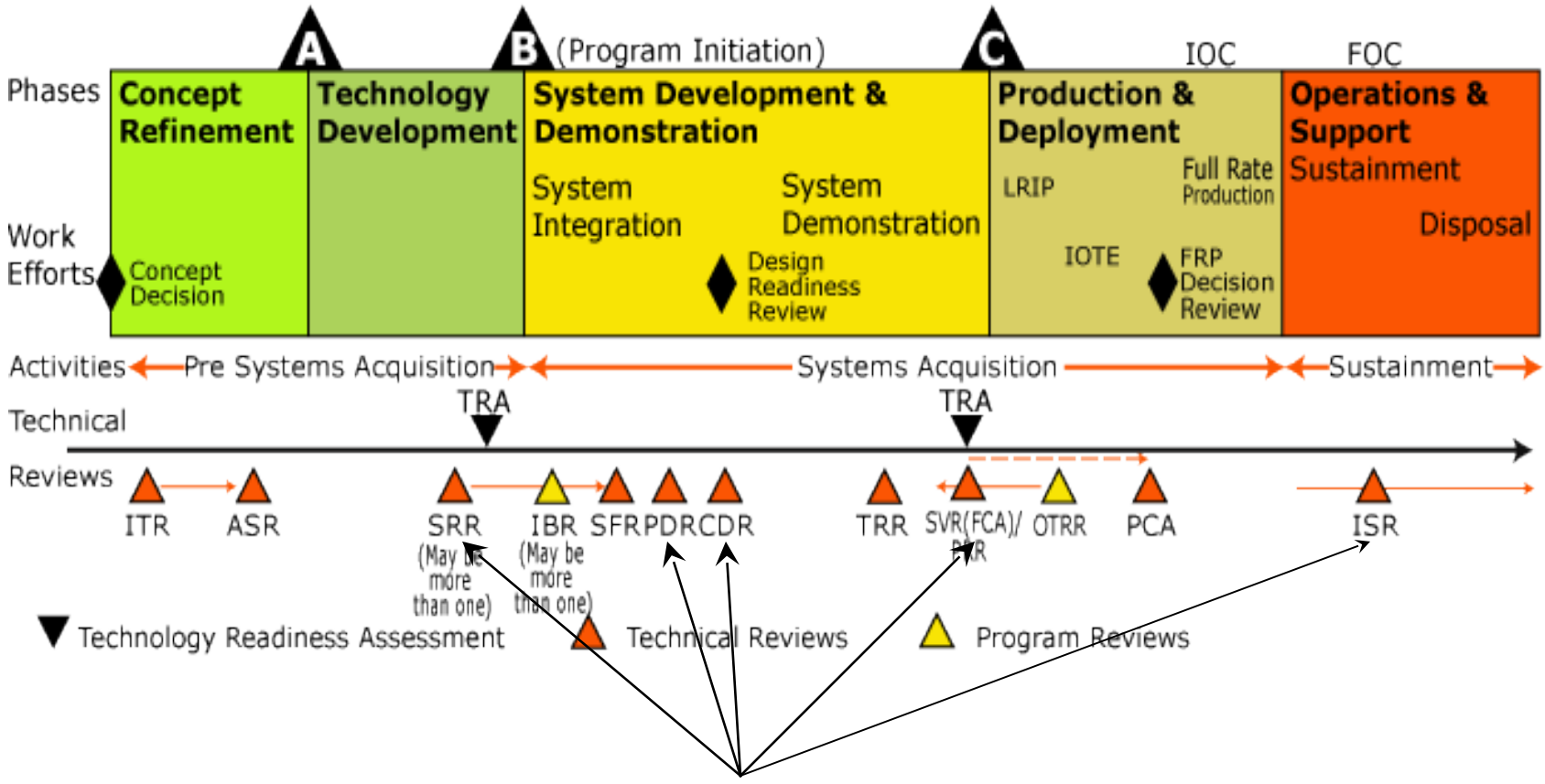
- Part of the program's technical planning and included in the Systems Engineering Plan (SEP)
- A design consideration as part of the SE process - a derived requirement
- Properly staffed and involved in the SE process
- Part of the technical baseline definition (functional, allocated, and product baselines)
- Included as technical review risk assessment and exit criteria

SSE Views on Parts Management

Parts Management Techniques in Systems Engineering

- Upfront logistics considerations should include R&M, standardization, quality and DMSMS:
  - Anticipate Diminishing Manufacturing Sources and Material Shortages
    - Avoid material that could wind up to be in short supply; use trusted sources
    - Avoid manufacturers that could possibly go out of business
  - Strongly consider common support equipment
  - Provide incentive to primes and lower tiers through the contract to use parts already in DoD system that meet requirements (i.e. reliability, affordability)
  - Include production engineers up front
  - Establish metrics (e.g., minimize # of unique parts) to encourage use of standard parts
  - Use SE trade studies to balance life cycle cost, availability, reliability and other design considerations

Program Technical Reviews



Part Management is an important design consideration

Related SSE Initiatives and Contributions

- **Defense Acquisition Guidebook (DAG), Chapter 4 (Systems Engineering) (*http:www.acq.osd.mil/se/publications.htm*)**
  - Update will include Parts Management as a 'Design Consideration'
  - Draft of proposed changes was written by PMRIPT SE Working Group
- **Design Considerations Discussion in Technical Planning (SEP Prep Guide)**

  (http://www.acq.osd.mil/sse/guidance.html)
  - Captured under Requirements, Staffing, Technical Reviews
- **Risk Assessment Checklists (refer to Technical Review CLE003 at (https://learn.dau.mil/html/clc/Clc.jsp)**
  - PSMC to review for Parts Management considerations
- **SSE Participation on:**
  - **MIL-STD-3018**
  - **Parts Management DID (DI-SDMP-81748)**
  - **Parts Management CLM**
  - **PMRIPT**
  - **SD-19 Update**

Proposed DAG Ch 4 Changes to Address Parts Management

- An overview of the goals of Part Management
  - Reduce logistics footprint and lower total life cycle costs
  - Mitigate parts obsolescence due to DMSMS
- What a part is and its relationship to other system elements and configuration items
- Discussion of parts management strategy
  - Consideration over the entire life cycle of a system
  - Based on the fundamental SE technical and technical management processes
    - Configuration management, technical assessment, decision analysis, design solution, implementation, verification and evaluation at technical reviews
  - A Parts Management Plan should be documented in the Systems Engineering Plan
- Parts selection should be based on trade-offs and cost-benefit analysis
- References MIL-STD-3018, SD-19 and industry guides for additional implementation details

Summary

- ODUSD (A&T)/SSE working with DSPO to ensure Parts Management becomes properly integrated with systems engineering and acquisition program oversight
  - Incorporation into Systems Engineering chapter of Defense Acquisition Guide
  - Incorporation as consideration in Technical Planning
  - Participation on various documents to assist the acquisition community to better address Parts Management (i.e. Risk Checklists, MIL-STD-3018, CLM, SD-19)

Backup

System Engineering Revitalization Effort

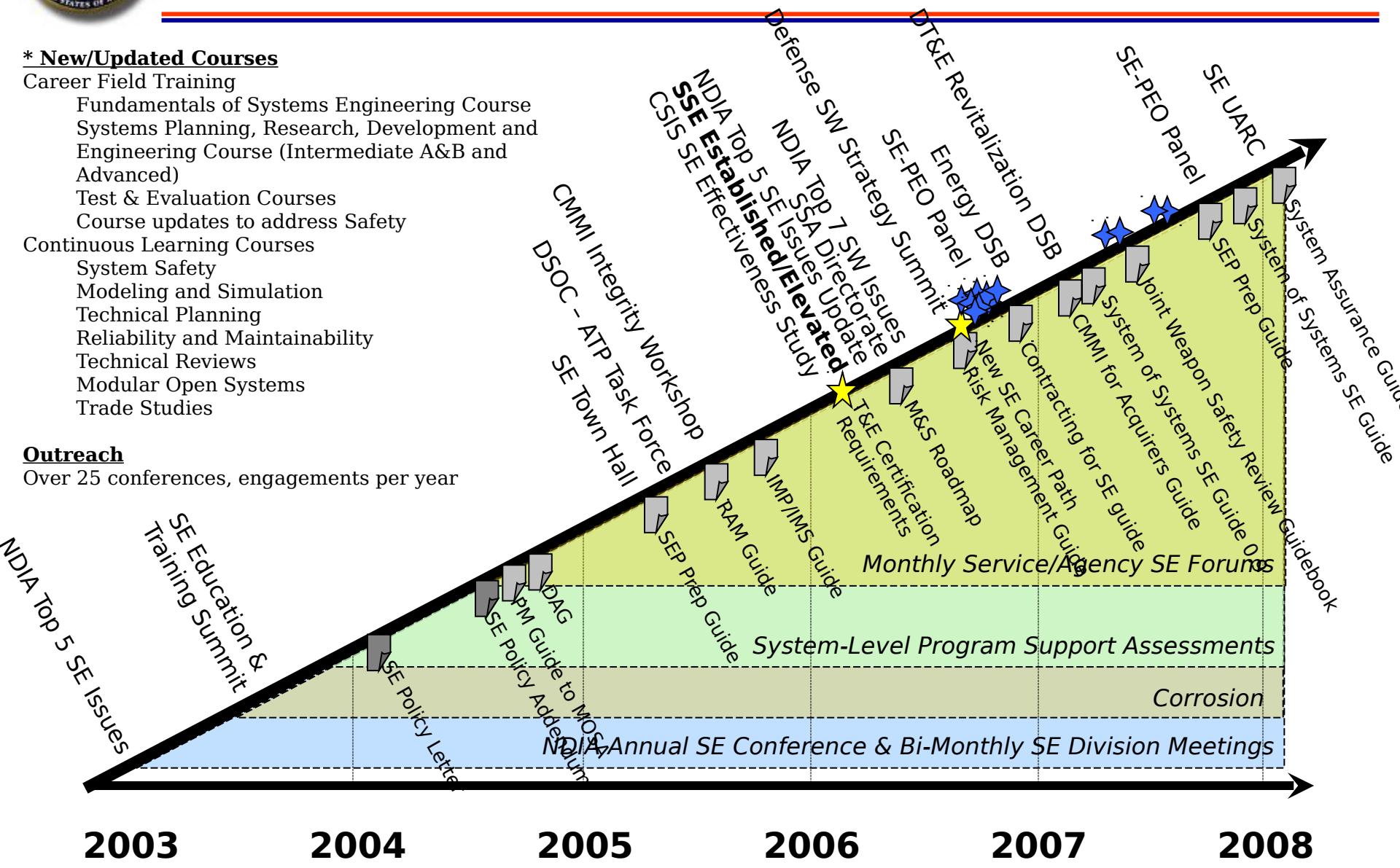
*** New/Updated Courses**

Career Field Training
- Fundamentals of Systems Engineering Course
- Systems Planning, Research, Development and Engineering Course (Intermediate A&B and Advanced)
- Test & Evaluation Courses
- Course updates to address Safety

Continuous Learning Courses
- System Safety
- Modeling and Simulation
- Technical Planning
- Reliability and Maintainability
- Technical Reviews
- Modular Open Systems
- Trade Studies

Outreach

Over 25 conferences, engagements per year



SE Policy in Draft DoDI 5000.2

Enclosure 12: Systems Engineering

E12.1. Systems Engineering Across the Acquisition Lifecycle.

E12.2. Systems Engineering Plan (SEP).

E12.2.1. "Program managers shall prepare a SEP for each milestone review, beginning with A."

E12.2.2. "The MDA shall be the approval authority for the SEP."

E12.3. Systems Engineering Leadership. Each Program Executive Officer shall have a lead or chief systems engineer on his or her staff responsible to the PEO for systems engineering across the PEO's portfolio of programs and shall:

E12.3.1. Review assigned programs' SEPs and oversee their implementation.

E12.3.2. Assess performance of subordinate lead or chief system engineers.

E12.4. Technical Reviews. Technical reviews shall be event driven, conducted when documented entrance criteria are met, and include participation by subject matter experts who are independent of the program.

E12.5. Configuration Management. Documented in the SEP, the configuration management approach shall identify, document, audit, and control the functional and physical characteristics of the system design, track any changes, and provide an audit trail of program design decisions and design modifications.

SE Policy in Draft DoDI 5000.2

E12.6. Environment, Safety, and Occupational Health (ESOH). The PM shall use the methodology in MIL-STD-882D to assess ESOH risk, eliminate ESOH hazards where possible, manage the risks that cannot be eliminated, and report on the status of ESOH risk at technical reviews.

E12.7. Corrosion Prevention and Control. Each ACAT I program shall document its strategy in a Corrosion Prevention Control Plan at Milestones B and C.

E12.8. Modular Open Systems Approach (MOSA). Program managers shall employ MOSA.

E12.9. Data Management and Technical Data Rights. Program managers for all ACAT I and II programs shall assess their long-term technical data needs and document them in a Data Management Strategy which shall be approved in the context of the acquisition strategy prior to issuing a contract solicitation.